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**Pre-service Teacher Education:
Connecting teaching principles to teaching practice**

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Introduction

Teacher preparation has been widely criticized for over 50 years. Scholars in the 1950s attacked programs for being too practical and non-intellectual (Popham & Greenberg, 1958), yet recent critiques claim that teacher preparation is overly academic, with insufficient attention to teaching practice (Carnegie Corp. of New York, N., 1986; Zeichner, 2010; Greenberg, McKee, & Walsh, 2013). In particular, many argue that the disconnect between academic knowledge studied in coursework and the teaching practice observed in field placements leave novice teachers ill-prepared for classroom life (Zeichner, 2010; Darling-Hammond, 2020; Valencia, 2009).

In response, many advocate for teacher training that tightly connects academic knowledge and teaching practice (Berry et. al. 2008; McDonald, Kazemi, & Kavanagh, 2013; Zeichner, 2010). University-based teacher educators have responded in various ways: creating professional development schools, asking students to analyze videos of master teaching, strengthening alignment with needs of school districts, and incorporating practice teaching into coursework (Zeichner, 2010). Simultaneously, many alternative certification programs emphasize practice teaching during training. For example, in some fast-track preparation programs (e.g. Teach for America, New York City Teaching Fellows) pre-service teachers learn by teaching summer school courses and receiving feedback from instructional coaches (Teach For America, 2014; NYC Teaching Fellows, 2014).

Urban Teacher Residencies (UTRs) are another innovation in teacher preparation (Zeichner, 2010; Berry et. al. 2008). “Residents” (i.e. pre-service teachers) at UTRs are placed in a school with an experienced teacher for a full year while also completing masters-level coursework in education (Berry et. al. 2008). Teacher educators at UTRs are veteran K-12 teachers who also have backgrounds in academia (Solomon, 2009). However, despite academic (Solomon, 2009) and federal advocacy of UTRs (Berry et. al., 2008), little research exists on how these programs enact preparation experiences for novice teachers. In particular, the curriculum and pedagogies utilized by UTRs to connect academic knowledge to teaching practices are in their infancy. Thus documenting the resources and instructional strategies employed by teacher educators at UTRs is essential, lest the field needlessly reinvent the wheel.

As such, this paper will explore how two teacher educators construct learning experiences for preservice teachers at one UTR. I will examine how these teacher educators define what I call teaching principles and then connect these principles to teaching practice for secondary mathematics and ELA pre-service teachers. By teaching principles, I mean to denote the educational research, theories, concepts, and frameworks that comprise the academic knowledge studied in coursework. Such principles signal dimensions of effective instruction but do not indicate a precise teaching practice. By teaching practice, I mean to indicate the various instructional moves, methods and routines that teachers employ when teaching a subject. My sample includes two teacher educators from Boston Teacher Residency (BTR), an in-district teacher program that prepares K-12 teachers to work in an urban school district. Using this sample, this study seeks to answer the questions: **What resources do teacher educators draw upon when**

designing courses preparing novice teachers? Within class-time, how do teacher educators make connections for novices between teaching principles and teaching practice? Describing how teacher educators design and instruct such courses will help practitioners and researchers move towards specifying a shared practice in teacher education.

Literature Review

Traditional Teacher Preparation & History of Reform

Traditional university-based teacher preparation programs frequently separate learning about educational theory from learning the practice of teaching (Grossman, Hammerness & McDonald., 2009). While many value the role experience plays in developing a teaching practice, scholars characterize coursework as academic in nature, concentrating on beliefs and knowledge about teaching, with students demonstrating competency through exams or written papers (Boyd, Goldhaber, Lankford, & Wyckoff, 2007; Clift & Brady, 2005; Feiman-Nemser & Remillard, 1995; Loewenberg Ball & Forzani, 2009). Though there is variability between programs (Clift & Brady, 2005), such coursework for teachers is typically rooted in the liberal arts tradition and features courses on how children learn, school and society, history of education, working with diverse populations, classroom management, curriculum design and assessment (Floden & Meniketti, 2005). Coursework occurs in universities, set apart from the school contexts in which students will teach. Yet students are expected to apply the teaching principles from coursework to their field placement with scant support from university faculty. Indeed the National Council of Teacher Quality (NCTQ) finds that the majority of

teacher education programs sacrifice attention to teaching practice in favor of developing a teaching philosophy (Greenberg, McKee, & Walsh, 2013). This has led many to critique traditional pre-service teacher preparation for expecting students to translate academic knowledge to teaching practice with little guidance (Grossman et al., 2009, Valencia, Martin, Place, & Grossman, 2009; Clift & Brady, 2005; Wilson, Floden, Ferrini-Mundy, 2002).

Field placement experiences have likewise been critiqued. First, many note that novices' pre-service teaching experience is typically isolated to field placements (Grossman & McDonald, 2008; Valencia et al., 2009), with no corresponding support in the university. Second, and compounding this problem, few K-12 classroom teachers model pedagogy reflective of the educational principles studied during coursework, making observed practice a poor match for the teaching principles espoused by the teacher education program (Darling-Hammond, 2010; Grossman & McDonald, 2008; Valencia, 2009). As a result, little connection exists between field placement work and university courses (Grossman & McDonald, 2008; Valencia et al., 2009). Indeed, in a study examining the relationship between student teachers, school-based cooperating teachers, and university mentors, Valencia et. al. (2009) found that feedback from cooperating teachers was rarely connected to the concepts in the methods courses at the university. Instead, student teaching focused on managing classrooms, following a prescribed curriculum, and learning how to “get along” with cooperating teachers (Valencia et al., 2009).

In response to this disconnect, teacher educators have attempted to more tightly couple the concepts in coursework and pre-service teaching experiences in various ways.

For example, in the 1960s, competency-based reform had pre-service teachers practicing specific skills believed to impact student learning (McDonald, Kazemi, & Kavanagh, 2013). However, this reform was subsequently criticized for conceiving of teaching as a collection of discrete skills, and also for whether or not research – and, by extension, teacher education programs – had correctly identified effective teaching practices (Zeichner & Liston, 1990). In another attempt to integrate practice and theory, professional development schools (PDSs) create partnerships between schools of education and districts (Zeichner, 2010). In PDSs, school teachers and university faculty collaboratively train novices while simultaneously researching effective teaching practice (Darling-Hammond, 1994). PDSs grew rapidly in the 1990s (Teitel, 1999) and a decade of evidence suggests an overall positive impact on pre-service teachers' effectiveness and retention (Castle & Reilly, 2011).

Urban Teachers Residencies also endeavor to bridge the principle/practice gap. UTRs exist outside of universities and often consist of third-party organizations working in partnerships with districts to train teachers for a particular context (Berry et. al. 2008). There are several defining characteristics of UTRs (Berry et. al, 2008). First, they are embedded within a district, creating a pipeline of teachers to serve a specific community. Second, residents work in schools with a cooperating teacher for an entire academic year, engaging in an intensive field experience in the district they will serve. Third, residents receive continued coaching in their first years of teaching, supporting a smooth transition in to teaching. Finally, UTRs strive to tightly connect teaching principles to teaching practices. As such, each UTR must not only determine which teaching principles are worth mastering, but also develop instructional strategies to illustrate such principles.

Below, I will further detail the clinical approach to teacher education that underlies many UTRs, including the one under study here.

Clinical Practice Approach to Teacher Education

The “clinical” approach to teacher education emphasizes practice teaching with feedback from an expert; this work typically occurs within teacher education courses (Grossman et al., 2009; Lampert, 2009; Lampert et al., 2013; McDonald et al., 2013). This often includes having novices examine, plan, and rehearse segments of instruction within coursework before teaching students in field placements. There is diversity in the language used to describe this practice; it is sometimes referred to as “rehearsals,” “micro teaching,” “approximations of practice,” or “clinical practice.” Regardless of nomenclature, the goal is to connect teaching principles to teaching practice by scaffolding novices’ work as they start to apply what they are learning in coursework to the classroom (Loewenberg Ball & Forzani, 2009).

Originally proposed by Lampert & Graziani (2009), educational researchers have detailed a rehearsal cycle for clinical teacher education (McDonald et al., 2013; Teacher Education by Design, 2015). In the first stage, novices learn about a specific teaching practice by studying a video, a written case or by observing a teacher educator model the practice. Second, novices prepare to teach that practice by co-planning or rehearsing with peers. Next, in small groups, novices practice teaching and receive coaching from a teacher educator. Finally, novices analyze a video of their teaching and write a reflection that identifies areas for improvement. Throughout this approach, novices would have opportunities to make connections between teaching principles and teaching practice. For

example, the rehearsed teaching practice may illustrate specific teaching principles. Additionally, the teacher educator's feedback may explicitly connect the rehearsed instruction to teaching principles. Lastly, the novices may connect the rehearsal and teaching principles when reflecting.

While this framework is sensible, questions remain regarding the enactment of a clinical approach to teacher education. First, it is unclear which resources teacher educators will draw upon when determining the focal teaching principles that guide the selection of teaching practices to be rehearsed. Second, there is little guidance about the specific ways in which teacher educators will connect teaching principles to teaching practice within the clinical cycle. In fact, teacher educators play a pivotal role in designing curriculum and enacting instruction in clinical approaches to teacher education, yet little is known overall about *how* teacher educators manage such work. As this method of preparing teachers is in its early development, understanding what is “happening on the ground” is critical for both future practice and ongoing research.

As such, this study seeks to understand how teacher educators at one pre-service teacher preparation program navigate this new terrain in teacher education. Boston Teacher Residency (BTR) is an in-district teacher preparation program that readies K-12 teachers to work in an urban school district. As one of the first teacher residency programs in the country, BTR has received national recognition as a leader in teacher education (Boston Teacher Residency, 2014). At BTR, all clinical teacher educators (CTEs) are expected to design and instruct teacher training classes using the clinical approach. In the words of one CTE,

So much of BTR is beautifully structured. The goals are so clearly articulated that the design just falls out. It's just so clear what we have to be modeling. We

have to use three Instructional Activities. We have to have residents learn them, rehearse them and enact them in the classroom.

As the role of CTE is new to both BTR and the field of teacher education, the setting is ideally suited to explore how CTEs make sense of and enact a clinical approach to teacher education. Thus this study uses BTR as a site to answer the questions: **What resources do teacher educators draw upon when designing courses that prepare novice teachers? Within class-time, how do teacher educators make connections for novices between teaching principles and teaching practice?**

Methods

A case study approach is utilized for two reasons: 1) it allows me to carefully examine and describe the process by which CTEs construct and implement teacher training courses; and 2) it is well suited to generate hypotheses about how teacher educators enact a new methodology in teacher education.

Sample

A result of a partnership between Boston Public Schools (BPS) and Boston Plan for Excellence (BPE), the Boston Teacher Residency (BTR) graduated its inaugural class in 2004. BTR's mission is to prepare a teaching force able to meet the challenges specific to Boston Public Schools. At BTR, residents engage in graduate-level coursework while working in a BPS school full time with a cooperating teacher. Teacher educators at BTR are called "Clinical Teacher Educators" (CTE), a title that reinforces the program's clinical approach to teacher education. During their first three years of teaching, residents

continue to receive support from BTR. To date, more than 500 BTR graduates teach in BPS (Boston Teacher Residency, 2014).

The one-year program begins in July with graduate-level course work. Summer subject-specific methods courses take place three hours a day for two weeks without school-age children present. During these weeks, residents also take courses on effective learning environments, English language learners and special education students (Boston Teacher Residency, 2015). During the school year, residents work in schools Monday through Thursday with a cooperating teacher. The CTEs visit schools and coach both cooperating teachers and residents. The subject specific methods course continues to meet for three hours every Thursday evening throughout the year. Residents also continue graduate-level classes in special education, English language learners and collaboration in schools (Boston Teacher Residency, 2015).

My analysis will focus on two BTR CTEs: the secondary mathematics CTE and secondary English language arts CTE. These CTEs were selected for multiple reasons. First, they are among the most experienced and respected CTEs at BTR. As such, they have acquired substantial knowledge about connecting teaching principles to teaching practice within methods courses. Second, by examining two cases, I will be able to compare across CTEs in both course design and instruction. While it would be inappropriate to generalize across all clinical teacher educators based on two case studies, contrasts in approach will lead to a richer understanding of the complexity of instructing such courses and of the implications for the field of teacher training.

Data

Qualitative data was collected in three ways: class observations, interviews with CTEs, and the collection of documents such as course syllabi, lesson agendas and handouts. The secondary math course was observed for **four** sessions in the first week of the course. The secondary ELA course was observed for **two** sessions in the second week of the course. While this is a portion of the instruction residents receive, the pedagogies and curriculum experienced in these two weeks are reflective of the longer courses. Additionally, it is important to note that observations occurred during summer when residents were not yet placed in schools. Thus any connection between teaching principles and practice must be made within the methods class by the CTE, as opposed to at a school placement site. This sample will allow me to describe how teacher educators instruct such courses and ultimately help practitioners and researchers move towards specifying a shared practice in teacher education. Observations were video-recorded and the observer took literal notes.

The secondary mathematics CTE was interviewed twice: once to ask her to describe how she plans the course and another time to ask her to describe her thinking process during segments of instruction. To surface her thinking, the CTE watched a clip of her instruction and answered questions such as “Can you describe in your words what was happening during this segment?” and “What shaped your teaching during this segment?” Due to time limitations, the secondary ELA CTE was interviewed once using an adapted version of the interview protocols used with the mathematics CTE. All interview protocols can be found in appendix A.

Clinical Teacher Educators

Mary, the secondary mathematics CTE, has been teaching at BTR for four years. Her position is part time, as she is also a private consultant in mathematics education. She began her career teaching High School Mathematics at a charter school in Boston. After four years of teaching, Mary worked for the Educational Development Center, designing and facilitating professional development for mathematics teachers. Jesse Solomon, the founder of BTR, subsequently recruited Mary to BTR.

Susan, the English Language Arts CTE, has worked at BTR in various roles for seven years, first as a cooperating teacher to residents at her BPS school and then as an instructional coach to BTR graduates. Currently Susan teaches the secondary ELA methods course and coaches residents and cooperating teachers in BPS schools. Susan brings extensive secondary classroom teaching experience to her work at BTR, primarily in urban middle schools.

Analysis

Data analysis followed a process described by Miles, Huberman & Saldaña (2013). Each CTE was treated as case and cases were coded sequentially, allowing me to compare and contrast the approaches to curriculum and instruction taken by the two teacher educators. Interview transcripts, course syllabi, field notes, and lesson videos were coded. Additionally, each case was coded twice: once to describe the data and the second time to identify themes.

The goal of the first round of coding was to describe the pedagogies and resources used in the course. In order to answer the first research question, “What resources do teacher educators draw upon when designing courses preparing novice teachers?” I coded

any mention or use of a given resource. To address the second research question, “How do teacher educators make connections for novices between teaching principles and teaching practice?”, I coded any instance of instruction where connections were made between a teaching principle and a teaching practice with a code titled “connection”. Additional pedagogy codes were suggested by the literature, initial field notes or emerged from the data. I wrote memos throughout the first round of coding in order to refine and expand the codes based on the data and to identify tentative patterns. The second round of coding included pattern codes and emergent codes surfaced during the first coding round. I coded by incident, allowing the length of the segment to vary. For example, if a lesson focused on exploring a specific topic from the Common Core State Standards (CCSS) for 20 minutes, the entire 20 minutes is coded as Resource: CCSS. On the other hand, if the CTE made a brief comment connecting CCSS to an instructional practice, the brief comment would be coded as a connection. Any one incident could be coded in multiple ways.

After the second round of coding, I wrote memos to identify themes within each case. In particular, I catalogued instances of the “resource” code to identify the variety of resources used in each course. I determined how extensively a resource was utilized by noting the frequency of use in video recording, predominance in the syllabus, and CTE’s reference to the resource in the interview. In this manner, I was able to identify the primary resources drawn upon by each CTE. In addition, for each course, I examined any instance of the “connection” code to identify the ways in which each CTE connects teaching principles to teaching practice. After parsing through the “connection” instances, I wrote memos to identify instructional themes that arose from the code. I then created

the cases presented below by selecting moments of instruction that illustrate these themes. In the last stage of analysis, I compared and contrasted findings from each case, writing memos highlighting salient commonalities and differences between the two courses related to the research questions. The results of this analysis are presented in the cross case comparison, after the presentation of cases.

Results

Mathematics Methods Course

What resources do teacher educators draw upon when designing courses preparing novice teachers? Mary primarily draws upon standards documents to define the focal teaching principles of the course. Indeed, the course syllabus identifies mastery of Common Core State Standards in Mathematics as the most prominent goal of the course. Furthermore, the vast majority (7 out of 8) of the summer lesson objectives focused on understanding the Common Core Standards for Mathematical Practice (CCSMP). CCSMP describes the mathematical thinking expected of proficient students, such as “*reason abstractly and quantitatively*” or “*attend to precision.*” Mary uses CCSMP to define the student thinking residents need to elicit in their classrooms.

In addition to CCSMP, Mary also draws upon the BTR Instructional Goals (see Table 1), a standards document internal to BTR. In contrast to CCSMP’s focus on student thinking, BTR Instructional Goals describe the general teaching practices residents are expected to master, such as “*build a culture where everybody matters and everybody participates.*” Demonstrating competency with the BTR Instruction Goals is highlighted as an objective of the course on the syllabus.

In practice, Mary combines these two resources. For instance, in the comment below, Mary describes the main goals of the course. In this, we hear Mary reference the BTR Instructional Goals when she talks about engaging every student (BTR Instructional Goal #1), assessing student knowledge (BTR Instructional Goal #3), and providing opportunities for students to write in math class (BTR Instructional Goal #4). We also see Mary describe the role CCSMP play in defining mathematical thinking for the course.

Mary's objectives:

It's to engage every student every day in a high level of thinking and reasoning mathematically and be assessing students' knowledge every day of where they are and using that to inform what you do the next day and providing opportunities for kids to read and write in math while that's happening. That's the big thing.

So that for me means mathematical thinking and reasoning. We are in a great place right now with the Common Core because the standards for mathematical practice is now our definition as a profession of what it means to think and reason mathematically.

While standards documents are the focal resources in the Math methods course, Mary also draws upon a selection of scholarly educational research. For example, Mary incorporates research on cognitive demand from the Quasar project at the University of Pittsburgh. The syllabus indicates that residents are expected use this research to evaluate the cognitive demand of a mathematical task. Similar to the role of the CCSMP, Mary uses this research to identify tasks that will provoke meaningful mathematical thinking.

Finally, Mary draws upon her own experience with novice teachers when designing the course. For example, in her interview Mary reported prioritizing learning mathematical content before teaching practice. This sequencing is designed to address the difference between residents' past experience as mathematics students and the current

mathematical expectations of students that Mary has observed over the years as the secondary mathematics CTE. In her words:

So we feel like the residents have to experience that math doing themselves so they know what it is from a personal perspective.

...

They typically will talk to us about how what they did these two weeks is so different from doing math in other places at other times or how they learned it. So they see that dichotomy, which is super important 'cause often times they're in classes that are very skill-heavy and it's hard for them to do something different if they don't have images of it. So we're creating images of it.

Thus in the secondary mathematics methods course, the focal teaching principles are predominantly defined by standards documents: CCSMP and BTR Instructional Goals. The CCSMP define the mathematical thinking expected of students. For example, MP.2 "*Reason abstractly and quantitatively*," expects students to be able to model real world problems using mathematics. Similarly, BTR Instructional Goals define broad teaching aims for residents without specifying teaching practices. For example, BTR Instructional Goal #1, "*Build a productive learning environment where every student matters and participates*," communicates the importance of student participation, but does not detail teaching practices that will achieve this goal. At the end of the course, residents are expected to be able to enact instruction that embodies both BTR Instructional Goals and CCSMP.

Within class-time, how do teacher educators make connections for novices between teaching principles and teaching practice? Mary engages residents in rich mathematical tasks and then uses those experiences to illuminate teaching principles, most prominently the CCSMP. Mary does so by explicitly identifying aspects of the residents' work that demonstrate particular principles and by asking residents to make

connections between their work and the principles in their reflections. In her own words, “... we are putting frameworks in front of them, but the way we are having them try to understand them is by doing the math themselves and reflecting on their experience.”

Throughout these tasks, Mary is also modeling instructional practices consistent with the BTR Instructional Goals, including the specific instructional activities (IAs) residents will master in subsequent weeks through the rehearsal cycle.

A clear lesson structure was observed in the sampled lessons. The focus of the week is the CCSMP, which define the teaching principles. First, residents read and write about a particular standard. Then residents complete a mathematical task as if they were high school or middle school students and Mary was their teacher. Next, the class uses the experience to examine how the task illustrates the CCSMP. Finally, Mary highlights the main ideas of the CCSMP and explicitly connects it to the classroom experience. The residents also have the opportunity to connect the modeled instruction to the BTR Instructional Goals. This cycle exemplifies Mary’s intention to have residents understand how CCSMP look and feel in a classroom before practicing how to teach. In the following vignette, I will illustrate this cycle by describing a lesson focused on mastering MP.2: *Reason abstractly and quantitatively*.

Mary’s instruction: Connecting teaching practice to CCSMP 2: Reason abstractly and quantitatively. The second day of the course is centered on making sense of MP.2, *reason abstractly and quantitatively*:

Mathematically proficient students make sense of quantities and their relationships in problem situations. They bring two complementary abilities to bear on problems involving quantitative relationships: the ability to *decontextualize*—to abstract a given situation and represent it symbolically and

manipulate the representing symbols as if they have a life of their own, without necessarily attending to their referents—and the ability to *contextualize*, to pause as needed during the manipulation process in order to probe into the referents for the symbols involved. Quantitative reasoning entails habits of creating a coherent representation of the problem at hand; considering the units involved; attending to the meaning of quantities, not just how to compute them; and knowing and flexibly using different properties of operations and objects (Common Core State Standards Initiative, 2015).

Upon entering the room, residents identify, write, and post one thing they think they know about MP.2 and one thing they want to learn. For example, two entries on the “think you know” poster are, “*proficient students are able to represent a problem in terms of quantities and/or numbers with meaning*” and “*meaning more important than right computation.*” In these comments we see residents connect MP.2 to student outcomes (representing problems) as well as a philosophy of teaching (importance of meaning.) In contrast, all but one entry on the “want to learn” poster is about teaching practice. For example, two contributions are, “*Ways to get a student to bridge the gap between real world and what is on paper*” and “*how do we apply this to daily in class assignments?*” In this manner, residents are beginning to understand MP.2, but have yet to identify teaching practices that support the standard.

The “Do Now” also exemplifies how Mary models teaching practices in order to illustrate BTR Instructional Goals. By asking each resident to write a response, Mary models a teaching practice that illuminates BTR Instructional Goals #1 *every student matters and participates* and #3 *assess students’ understanding every day to inform instruction.*

Next, consistent with the instructional design observed in all lessons, Mary engages the residents with a mathematical task as if they were middle or high school

students and Mary was their teacher. Residents act out a problem known as “Crossing the River” (see inset), solve it with a partner,

then proceed to answer increasingly

sophisticated mathematical questions

about the problem, such as “Write a rule

Crossing the River

A group of 8 adults and 2 children need to cross a river. They have a small boat that can hold either 1 adult OR 1 child OR 2 children. How many one-way trips does it take for all 8 adults and 2 children to cross the river? Show or explain how you got them all across.

for finding the number of trips needed to get any number of adults (A) and two children across the river.” This task demonstrates two key skills in MP.2: how to represent a problem symbolically (decontextualize) and how to understand the representation in terms of the problem situation (contextualize). For example, when residents create a linear expression to model the number of trips, they have decontextualized the “Crossing the River” problem. When they interpret the meaning of the slope in the equation in terms of the original problem, they are contextualizing. In both decontextualizing and contextualizing this problem, residents have the opportunity to understand mathematical thinking consistent with MP.2 by experiencing it as students.

To this, Mary adds explicitness about the connections between the task and the practice standard by highlighting features of residents’ work that illustrate MP.2. For example, after one resident explains her work to Mary, she comments:

I’m curious, what does this difference represent on your graph? ... This is a great example (points to graph the resident has drawn) of de-contextualizing; using the table to know that the relationship is linear and you can use that now. And what I am trying to do is get you to re-contextualize by understanding what the difference stands for.

Mary continues to circulate as residents work, listening to them, asking them to explain their thinking, and naming the practice standards represented in their work. In

this manner, she makes the mathematical thinking required by MP.2 explicit to residents by identifying aspects of their process that illustrate MP.2.

Mary refers to this teaching practice as “conferring” and it is one of the three instructional activities residents will master in subsequent weeks through rehearsals. When Mary confers, she first observes students (in this case the residents) working on a math task. She then asks questions of the students (residents) in order to understand what they are thinking so that, finally, she can respond productively to student (resident) thinking. Conferring is an example of a teaching practice that illustrates BTR Instructional Goals #2 *maintain a consistent focus on student understanding* and #3 *assess students’ understanding every day to inform instruction*. In the first week of the course, Mary repeatedly models conferring for the residents, though she does not yet name the practice for them.

After completing the task, the class begins reflecting on the experience. This too helps illustrate what MP.2 and other practice standards look like for learners. Mary asks, “What were the questions that were driving your inquiry?” Residents write answers on chart paper and then examine their classmates’ responses. Mary continues to circulate and highlight features of the residents’ mathematical thinking consistent with CCSMP, saying, “In what you are saying, I hear two mathematical practices happening...” and “So that’s a great example of mathematical practice seven...” Residents then individually complete a “mathematical thinking record” to log strategies used on the task, identify aspects of MP.2 they want to remember as well as note any other math practices they observed during the task. Through the mathematical thinking record, residents continue to make connections between MP.2, the mathematical task and their thinking.

The emphasis on integrating MP.2 and the mathematical task continues as the class shifts to a discussion aimed at unpacking another important aspect of MP.2: the meaning of and relationships between quantities. The excerpt below illustrates how Mary pushes residents to understand thinking consistent with MP.2 by identifying the quantities and relationships in crossing the river:

Mary: What were some of the quantities you were paying attention to in crossing the river?

Jack: How many people fit in the boats?

Mary: The number of people in the boat? ... A quantity has a number, two, it has a sign, positive or negative, and it has a unit, adults. So our 2 children in a boat, that quantity is 2, it's positive. And the units are children. So one thing is number of people in the boat. What's another quantity you paid attention to?

Notice how Mary's questions and comments help residents understand MP.2 in practice. First, she opens the discussion by asking a question that highlights a key aspect of MP.2: identifying quantities. Then, after a resident responds, she builds upon his answer in order to make explicit the attributes of a quantity: number, sign and unit. The discussion continues:

Mary: There are multiple quantities in the problem and a bunch of relationships in this problem. What's one relationship that you found? So take some quantities here and tell me their relationship.

Ethan: Total number of trips and the total number of people...

Mary: Uh huh. So what is the relationship between the total number of trips and total number of people? How can we describe that relationship?

Marc: The number of trips increases as the number of people increases.

Mary: So the more people we have, the more trips we have? Okay, can we be more precise about that?

Marc: The number of (pause) the total trips is the sum of the number of the number of trips it takes to get each adult across plus the number of trips it takes to get each child across.

Again Mary's question calls attention to another key aspect of MP.2: relationships between quantities. As residents answer, she paraphrases their responses and presses

them to be more precise, a key aspect of another CCSMP (MP.7). In this manner, Mary is asking residents to understand how aspects of MP.2 manifest in the mathematical task, *Crossing the River*.

After a brief discussion, Mary begins to lecture, making clear connections between the residents' mathematical work and MP.2 and discussing the meaning of the standard, by saying, "Sometimes quantities are explicit. There are eight adults and two children. And sometimes quantities are implicit. Number of trips per child..." In this moment, Mary is drawing upon residents' contributions from the previous discussion to illustrate an important point: quantities are not always explicitly stated, but sometimes implied by the problem. Mary continues:

So mathematically proficient students look at a problem like this and start saying 'okay, so what are the important quantities and how can I find the relationship between them' and sort of one of the relationships here is 'how can I describe the number of trips in terms of number of kids and adults?' And then you move on to, the number of trips is four times the number of adults plus 1...

In this excerpt, Mary makes the mathematical reasoning required by MP.2 visible to residents by describing the questions students should ask themselves when making sense of problems. Finally, Mary ends this portion of the lesson by reviewing the main ideas of MP.2, "So there are two big ideas in math practice two, this idea of contextualizing and decontextualizing as well as representing problem situations."

At the end of the lesson, residents also have the opportunity to connect the modeled teaching to the BTR Instructional Goals. After reviewing the Goals, the teaching assistant asks residents to identify moments of instruction that exemplify the Goals. For example, residents name working in partners as a way to achieve BTR Goals #1 *build a culture where every student matters and participates*, and circulating to observe student

work as a method to achieve BTR Goals #3 *maintain a consistent focus on student understanding.*

Thus Mary uses the residents' mathematical thinking on rich tasks to surface the reasoning that MP.2 requires of students, while simultaneously modeling teaching consistent with BTR Goals. By naming precise instances where their work illustrates MP.2, she is helping them build a vision for teaching and learning in secondary mathematics that is aligned with the math practice standards. Not only does she explicitly connect their mathematical contributions to the principles in the standards, but she also asks the residents to do the same when they complete the mathematical thinking record. To add to this, residents also have the opportunity to reflect on the elements of the modeled instruction that illustrate the BTR Goals.

English Language Arts Methods Course

What resources do teacher educators draw upon when designing courses preparing novice teachers? Susan draws primarily upon the internal standards document BTR Instructional Goals to define the focal teaching principles of the course. As stated in the syllabus, "Our focus this summer will be to develop an introductory understanding of the BTR Instructional Goals and how they relate to our own teaching and learning." These goals are also utilized in the secondary mathematics course and describe general teaching aims without specifying teaching practices. For example, goals #3 states, "*Assess students' understanding everyday to inform instructional decisions and plan cognitively demanding lessons and units of instruction.*" There are two educational

concepts embedded in this goal: the role of assessment in learning and the importance of cognitively demanding tasks. I characterize this goal as a teaching principle as it signals dimensions of effective instruction but does not indicate a precise teaching practice. Thus a primary course objective is for the residents to develop teaching practices that realize the BTR Instructional Goals.

Susan also draws upon selected research articles. For example, during the observed lessons, residents read and analyze an article by Magdalene Lampert in order to understand the role of rehearsals in teacher preparation. The syllabus also includes research on issues of pedagogy, power and oppression drawing on the works of Lisa Delpit and Paulo Freire. Additionally, in the interview, Susan describes how research on novices and her past observations of student teachers replicating poor teaching practice informs the course. In her own words:

Why are they still replicating the kind of practices that I thought they said they didn't want to do, from their mentor teacher? And there's been a lot written about that. But it really follows the classic literature around the novice and how practices get replicated.

In addition to text-based resources, Susan also collaborates with colleagues. In the interview she describes how working with teacher educators at University of Michigan influenced the design of one instructional activity: The language puzzle. Through learning about the elementary mathematics instructional activities (IAs), Susan began to understand the purpose of IAs in teacher education. This allowed her to create an ELA IA that served those purposes. She describes the effect of the collaboration as follows:

... so hearing her thinking and her group's thinking around each IA really helped me know what the approximation was for students and for teachers. Like, what's the teacher learning here? What's the learning for kids? So, that helped me think

like – What do I want teachers to learn how to do? And how does the complexity grow over time?

Indeed, Susan describes the elementary mathematics IAs being a ‘blueprint’ for her secondary ELA IAs.

Finally, Susan also draws upon ELA Common Core State Standards. Though only briefly referenced on the syllabus, during the interview Susan names understanding the writing, reading, speaking, listening and language skills articulated in the CCSS as a primary goal of the course, on par with the BTR Instructional Goals. Indeed, in one observed lesson residents identify what skills are required by CCSS at a particular grade level.

Thus, similar to Mary, we see Susan largely using standards documents (BTR Instructional Goals and CCSS) to define the focal teaching principles of the course. While she also draws upon a selection of scholarly research, the main objective of the course is for residents to translate the BTR Instructional Goals to teaching practice.

Within class-time, how do teacher educators make connections for novices between teaching principles and teaching practice? I observe Susan use the rehearsal cycle and scripted instructional activities (IAs) to connect teaching practice to teaching principles, most notably the BTR Instructional Goals. She does so in two ways: 1) She purposely scripts instructional activities to employ specific teaching moves to demonstrate the BTR Instructional Goals; and 2) She offers multiple opportunities for residents to identify the aspects of the IA that illustrate BTR Instructional Goals.

Susan's lesson structure is consistent with rehearsal cycle described previously (McDonald et al., 2013; Teacher Education by Design, 2015). That is, after Susan models the IA, the residents examine the instructional experience in order to identify the ways in which the IA achieves the BTR Instructional Goals. Next, residents use the IA script to plan to teach the IA. Following, residents rehearse the IA and receive live coaching from Susan that attends to the ways in which their practice realizes the BTR Instructional Goals. Finally, residents review recordings of their practice teaching and reflect upon how the BTR Instructional Goals were achieved and how they can improve their teaching. In this manner, residents are given repeated and increasingly personal opportunities to connect BTR Instructional Goals to teaching practice through the rehearsal of IAs. I will describe this cycle below with a lesson introducing the first IA: the language puzzle.

Susan's instruction: Connecting teaching practice to BTR Instructional Goals using the rehearsal cycle. On the seventh day of the course, Susan models the language puzzle, an IA designed to help students understand a particular grammatical structure – for this exercise, the participial phrase. Much like the secondary mathematics course, residents experience this activity as if they were middle or high school students and Susan was their teacher. Susan begins by defining participles (“Participles are a verb form ending in –ing or -ed. They show action, like verbs, but also describe, like adjectives”), presents an example of a sentence with a participial phrase, and asks residents to create new sentences mirroring the exemplar. Susan examines their work, takes notes, and selects one resident's work to display. A whole-class discussion ensues around the resident's work, with Susan asking the class questions like, “How is this a

good imitation of the model?,” “Let’s identify the participial phrase in the model. How do we find it in the model? In the imitation?,” “What did she do here as a writer to help the reader?,” “Why would a writer keep four simple sentences separate?,” “Why a participial phrase? What does it do for the sentence?” Throughout, Susan text marks the resident’s work to highlight important features.

The questions Susan employs are one way she uses the IA scripts to model teaching practice consistent with BTR Instructional Goals. First, notice the questions are open-ended and require students to describe and explain. They go beyond simply determining whether an answer is “right” and ask students to dissect the writing and understand a writer’s purpose when using a participial phrase. In this manner, Susan is showing residents a teaching practice that maintains cognitive demand when studying grammar; she is also illustrating BTR Instructional Goal #2, *“Teach lessons with high cognitive demand, maintaining a consistent focus on student reasoning and enabling students to understand big ideas in academic content areas.”* Following, residents will analyze Susan’s instruction to make direct connections to BTR Instructional Goals.

Once the IA is complete, a teaching fellow leads a discussion (using questions designed by Susan) prompting residents to draw connections between the modeled instruction and the BTR Instructional Goals. The residents use the IA script as well as a document detailing the BTR Instructional Goals to ground their observations. The teaching fellow begins by asking residents to explain how they see the BTR Instructional Goals contained within the IA. After cold calling a few residents, she paraphrases a comment about how student work was used to foster a discussion:

Teaching Fellow: ... Let me see if I heard you correctly: creating classrooms in which reasoned discourse is central. Where students listen to, respond to and expand upon each others' ideas to deepen the content understanding. I heard a discussion at this table, so we'll just jog our memory. Who else found that one?
...

In this excerpt, we see the teaching fellow respond to the resident's contribution by drawing upon the text of the BTR Instructional Goals. Not only does this focus other residents' attention, but it also allows the teaching fellow to introduce language consistent with BTR Instructional Goals (i.e. "creating classrooms in which reasoned discourse is central") in order to explicitly connect the goals and the teaching practice. The residents respond to the teaching fellow's prompt above in multiple ways:

Paul: I think, um, asking the students to, um, now respond to maybe whether or not, the student who did it right could describe what the student was thinking, forces you to think about the other student's ideas.
...

Jessica: The teacher is not using her own knowledge of a correct sentence, but rather is calling on a student and so that's on step four, page two [of the script]
...

Jessica: So it says, 'Cold call a student you noticed would be ready to participate, based on your notes from circulation.' So that way students have to report that they really are responding to that student's ideas rather than 'this correct based on the teacher said it was correct'

In the responses above, we can see the residents are highlighting portions of the observed instruction that illustrate the BTR Instructional Goals. For example, Paul is making a connection between the teacher's prompt and its impact on student thinking when he notes that asking a student to "describe" "forces you to think about the other student's ideas." Meanwhile, Jessica references the IA script to highlight a teaching practice that put the cognitive demand on the students, namely cold calling a student to respond to their peer's work, a practice illustrative of BTR Instructional Goals #1.

However, they have not yet linked these teaching moves directly to the BTR Instructional Goals. The discussion continues:

Teaching Fellow: So how is that an example of that instructional goal one, number two, ‘Expanding on each others’ ideas to deepen content knowledge’?

Haley: ... cause the students are responding to the work of another student. So, like we said, they are not responding to “The answer is answer b, that’s the correct answer.” Where I see the deepening of their understanding here because they are also analyzing how their peers got to their answer.

Teaching Fellow: So Haley is getting at the importance of, in order to use and expand on each other’s ideas, using student work to help us begin the conversation.

Here we see the teaching fellow build upon the residents’ contributions by calling attention to a key component of BTR Instructional Goals #1: “*expanding on each other’s ideas to deepen content knowledge.*” In this manner, she asks the resident to connect the teaching practice noticed (asking students to respond to each others’ work) to the BTR Instructional Goals. A resident, Haley, then describes the instructional moment again, this time relating it to the BTR Instructional Goal. The teaching fellow then brings closure to the exchange by summarizing the relationship between the BTR Instructional Goals and the teaching practice of using student work to foster discussions.

The following day, the class returns to the rehearsal cycle after a discussion of an article by Magdalene Lampert about using rehearsals to learn how to teach. First residents plan to teach the language puzzle with a partner, and then a small group rehearses the IA with Susan. During this rehearsal, one resident teaches the language puzzle while the others play the role of students. Susan observes, takes notes, and pauses the rehearsal to ask questions and give feedback. I will illustrate how Susan’s coaching connects teaching practice to the BTR Instructional Goals below.

In the following excerpt, a piece of student work is displayed and the class is examining the role the comma plays in separating the participial phrase. The rehearsing resident has just posed a question to the group, when Susan pauses the rehearsal.

Susan: Can I pause here? You said, “what do these commas do for us? Do they serve a certain purpose?” (*turning to the group*) So what’s a correct answer for that?

Dwayne (*playing student role*): Yes or no.

Susan: The last question, “do they serve a purpose” Yes or No. And then it kind of ends the discussion. And so watching our closed questions, especially for a very tight content focused discussions. I’m not saying never do that, but be careful and be sure it is serving the purpose. If I’m here thinking ‘no it doesn’t’ then I’m now disengaged... So, how else can we rephrase that to get at the point? I want to ask you (*to rehearsing resident*) what are you thinking now? What is on the table? What are you trying to deal with? What do you want us to do with the next question?

The exchange above exemplifies how Susan uses feedback to connect the rehearsal to the BTR Instructional Goals. We see Susan differentiate between the impact of closed-ended and open-ended questions on student engagement. She notes that close-ended questions stifle student engagement, and thus she is highlighting a teaching practice related to BTR Instructional Goals # 1, “*Build a culture where every student matters and participates.*” In this manner, she identifies the use of open-ended questions as a way to ensure all students participate. She then presses the resident to reword her question in order to engage all students. The coaching proceeds:

Justine (*rehearsing*): Um. I want students to examine the use of punctuation here and see how it separates the participial phrase from the main clause of the sentence.

Susan: To examine the use of punctuation (*turns to group*). So how can she ask that? ...

Alexa (*student role*): What is the purpose of the comma placement?

Susan: What is the purpose? We talked about this yesterday. Naming the author. As a writer, what is the purpose... so actually naming you as the writer here ... What is the purpose here, as a writer? ... Go back to your question again.

Alexa (student role): So what is the purpose relevant to the participial phrase?

Susan: ...There is a message here. We are trying to say writers have a purpose when they write to an audience... What is JK Rowling's purpose as a writer? Or we are talking about Lisa. What's Lisa's purpose for combining [the phrases]? What is she trying to communicate? So try on, instead of saying 'does it serve a purpose' [to] shake that up and say 'What do you think Lisa's purpose was in using commas in these sentences?'

In the above excerpt, we see Susan ask the residents to rephrase the question so that it aligns with BTR Instructional Goal #1. As residents struggle to fully articulate a question, Susan increasingly provides the prompts from the IA script. In this manner she connects the detailed teaching moves to the BTR Instructional Goals.

Through this vignette, we see how Susan uses the IAs and rehearsals to make connections between the BTR Instructional Goals and teaching practice. First, Susan scripts the IA, including specific teaching moves illustrative of the BTR Instructional Goals. Second, residents unpack the IA to make connections between the BTR Instructional Goals and the modeled instruction. Finally, residents rehearse the IA and Susan provides feedback on how they can improve their instructional practice to more closely align to the BTR Instructional Goals. Later residents review a video of their rehearsal to reflect on their practice.

Cross Case Analysis

Comparing results from both CTEs allows me to surface some possible resources clinical teacher educators draw upon as well as the potential ways they attempt to connect teaching principles to practice. By determining similarities and differences across the two

CTEs, I hope to identify areas for further exploration for both practitioners and researchers, and to inform the field of clinical teacher education as it moves towards specifying a shared practice. The themes presented below resulted from comparing the patterns generated through each case. In what follows, I first present patterns related to the first research question, “What resources do teacher educators draw upon when designing courses preparing novice teachers?” followed by patterns related to the second research question, “Within class-time, how do teacher educators make connections for novices between teaching principles learned in coursework and teaching practice?”

Resources. Both CTEs drew heavily on Common Core State Standards and BTR Instructional Goals to define the focal teaching principles of the courses. This is evidenced by the prominence of these resources in the course syllabi, as well as the substantial lesson time devoted to understanding the standards. In the secondary mathematics course, I observed residents study the CCSS in two ways: student presentations about the content standards, and engagement in mathematical tasks centered on the Standards for Mathematical Practice. In the secondary ELA course, I observed residents learning content standards by summarizing the main themes at a grade level and conducting a gallery walk of their peers’ work.

Similarly, BTR Instructional Goals drove instruction in both courses in several ways. First, CTEs continuously modeled instruction consistent with these goals, often naming teaching moves aligned with the goals or asking residents to identify where they observed those goals in the lesson. Second, both CTEs structured the IAs to illuminate the BTR Instructional Goals. Though I only observe Susan explicitly ask residents to connect the IA to the goals, Mary reports doing so in subsequent weeks of the course.

The use of common standards such as CCSS and BTR Instructional Goals to describe the focal teaching principles creates a curricular coherence between the two courses not often found in traditional teacher education programs. As such, residents in both secondary math and secondary ELA are trained with a particular vision of teaching. This stands in contrast to the curricular incoherence observed in most traditional teacher education programs (Clift & Brady, 2005; Darling Hammond & Hammerness, 2005). The use of the CCSS has the potential to increase coherence not only within BTR, and consequently BPS, but also across states that have adopted CCSS, should these teachers leave BPS.

Connecting teaching principles and practice. An analysis of the “connection” code revealed that both courses utilize the rehearsal cycle to connect teaching principles (namely CCSS and BTR Instructional Goals) to teaching practice. While this finding is expected as it is part of BTR’s design, it remains noteworthy as it stands in contrast to the separation of educational theory and teaching practice frequently found in many teacher education programs, where practice is isolated to field placements (Valencia et al., 2009). Much like the use of common resources, the consistent use of the rehearsal cycle across the two courses also adds greater coherence between secondary mathematics and ELA around a particular vision of learning how to teach.

Both CTEs initiated the full rehearsal cycle in the second week of the course. As I spent the second week observing the ELA course, I did not observe Mary conduct the complete rehearsal cycle, though I did observe her model the conferring IA and she described completing the full cycle in her interview. I observed the entire rehearsal cycle in ELA: Susan model teaches the Language Puzzle, and residents connect the IA to the

BTR Instructional Goals by dissecting the model teaching, rehearsing with feedback from Susan, and reflecting on videos of their instruction.

While both courses employ the rehearsal cycle, comparing the two observed IAs (one in math and one in ELA) reveals differences in the types of teaching practices illustrated by the IAs. While in both IAs demonstrate teaching practice consistent with the principles described by BTR Instructional Goals, the IA observed in ELA is a content-specific practice, whereas in Math, the observed IA is an instructional routine that can be used daily. It is possible this contrast is a result of the lessons sampled and that both courses contain examples of each type of IAs or that there are other categories of IAs. Nonetheless, these two IAs suggest there is variability in structure of IAs within these two courses. In her own words, Susan describes the purpose of ELA IAs as follows:

... it just really made sense that if we want to control kind of the context and the setting, for the context in which novices or pre-service teachers can kind of explore and learn about teaching, within this contained activity, that you can really go deep.

For example, the language puzzle IA has a specific grammatical objective. In this way, it is something a teacher would use selectively, rather than a teaching practice to be employed more generally. At the same time, as evidenced by her feedback to residents, Susan uses the language puzzle to help residents develop general teaching skills such as leading a discussion or phrasing questions to maximize student engagement. She connects these skills directly to the BTR Instructional Goals #1: *“Build a culture where every student matters and participates.”* In this manner, residents are practicing general teaching skills within a content-focused piece of instruction.

On the other hand, the IA observed in secondary mathematics, conferring, was a general teaching practice that can be used in almost any lesson. In Mary's words:

Then BTR tries to get residents to think about what ambitious instruction looks like through their Instructional Activity structures. So these are sort of routines that you do in the classroom much like you have classroom management routines. You have mathematical routines that kids do over and over again.

The IA I observed Mary model (conferring) illustrates Mary's description as it is not a content-specific practice like the language puzzle, but rather an instructional routine a teacher uses frequently. In conferring, a teacher observes students working on math, then ask questions of the students in order to understand their thinking and respond productively. In this manner, conferring addresses BTR Instructional Goals #2, *"Maintain a consistent focus on student understanding,"* and #3, *"Assess students' understanding every day to inform instruction."*

Lastly, both CTEs model instruction, with residents playing the role of students, to make connections between teaching practice and teaching principles (namely CCSS and BTR Instructional Goals.)¹ For example, in math, Mary models teaching with rich mathematical tasks in order to help residents make connections between CCSMP and teaching practice. As previously detailed, Mary uses the "Crossing the River" problem to help residents understand what CCSMP 2, *reason abstractly and quantitatively*, feels like in practice. Such use of standards to shift pre-service teachers' conceptions about mathematics from skill-based to rich problem-solving and mathematical sense-making has a long tradition in mathematics teacher training (Clift & Brody, 2005). This suggests

¹ While I did not observe Susan model teach outside of the rehearsal cycle in ELA, syllabus and interview with Susan indicate this occurred in the first week of the course.

that modeling instruction may play an important role in helping residents make connections between teaching principles and teaching practice.

Conclusion

Preparing teachers for the classroom has been a persistent challenge for teacher education. In response to the failures of field placements in traditional programs, current calls for a clinical practice in teacher education aim to tightly integrate both abstract teaching principles and teaching practice. The objective of this study is to understand how two teacher educators make sense of and enact a clinical approach to teacher education in one Urban Teacher Residency. In short, I found that both CTEs bring standards such as BTR Instructional Goals and CCSS to life by connecting them to teaching practice. They do so by modeling instructional practice consistent with BTR Instructional Goals and CCSMP and also by drawing explicit connections between the modeled practice and the standards. Additionally, both CTEs create instructional activities to match the focal teaching standards to a teaching practice. It is the deliberate, focused, and repetitive experience with the instructional activities throughout the rehearsal cycle that allows novices the opportunity to develop a teaching practice consistent with the standards.

What is remarkable about these two teacher educators is how they seamlessly blend together a teaching practice with a philosophy of teaching, rather than sacrificing one for the other. Indeed, it is the unique combination of standards (CCSS and BTR Instructional Goals) and rehearsals that allows residents to build a teaching practice that matches a philosophy of teaching. This is significant as it stands in contrast to many

teacher education programs that focus on developing a teaching philosophy in isolation from a teaching practice (Greenberg, McKee, & Walsh, 2013). And yet, these two CTEs use the philosophy of teaching embedded in the standards to build a concrete teaching practice. Thus this is an important model for the field of teacher education as it not only shows one example of preparing teachers for the Common Core, but also because it challenges the assumed dichotomy between practice and philosophy in teacher education.

Implications

But what kind of organizational resources were needed for both CTEs to design a coherent curriculum that simultaneously attends to teaching practice and philosophy? It is probable that substantial energy across the BTR program was required to develop the Instructional Goals. One imagines that such work not only requires considerable knowledge of teaching and learning across disciplines, but also likely involves intense collaboration within the program to distill such knowledge into succinct standards. Furthermore, consistent implementation of the rehearsal cycles also likely requires substantial coordination and common planning across CTEs, a rarity in university-based schools of education. Finally, it is doubtful that such work occurred without the support of strong leadership team committed to developing a shared vision of teaching and learning.

Furthermore, comparisons across these two CTEs raise additional important questions. First, this study was not able to fully explore how these two CTEs developed the IAs utilized their courses. Questions remain regarding the ways in which they draw on their past experience as teachers, collaborations with colleagues, or research on instructional practice when designing IAs. Relatedly, it is also not clear the extent to

which the modeled teaching practices reflect a shared interpretation of CCSS and BTR Instructional Goals. These questions are important as they speak to the ways in which CTEs translate standards into teaching practices as well as the extent to which there is variability in their interpretations. Such an exploration could contribute to the field of teacher education as it continues to develop shared practices in teacher training.

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Table 1*BTR Instructional Goals*

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1. Build a culture where every student matters and participates
 2. Maintain a consistent focus on student understanding
 3. Assess students' understanding every day to inform instruction
 4. Ensure students read and write in all content areas in meaningful ways, and on a regular basis
-